

What is claimed is:

- Sub B'*
1. A method of downregulating interleukin-12 production in a subject, comprising administering to the subject an interleukin-12 downregulating amount of a ligand of complement receptor 3 or complement receptor 4 effective in downregulating interleukin-12 production.

 2. A method of reducing an interleukin-12-induced inflammatory response in a subject, comprising administering to the subject an amount of a ligand of complement receptor 3 or complement receptor 4 effective in reducing the interleukin-12-induced inflammatory response.

 3. A method of reducing the symptoms characteristic of an autoimmune disease by downregulating interleukin-12 production, comprising administering to the subject an amount of a ligand of complement receptor 3 or complement receptor 4 effective in downregulating interleukin-12 production, thereby reducing the symptoms characteristic of an autoimmune disease.

 4. The method of claim 3, wherein the symptoms characteristic of autoimmune disease are selected from the group consisting of fever, fatigue, weight loss, joint swelling, pain, tenderness, stiffness and skin lesions.

Sub B2

 5. A method of treating or preventing the interleukin-12-induced inflammatory response of an autoimmune disease in a human subject, comprising administering to a subject an amount of a ligand of complement receptor 3 or complement receptor 4 effective in downregulating production of interleukin-12, thereby treating or preventing the interleukin-12-induced inflammatory response of an autoimmune disease.

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6. The method of claim 5, wherein the autoimmune disease is selected from the group consisting of inflammatory bowel disease, multiple sclerosis, rheumatoid arthritis, diabetes mellitus, pernicious anemia, autoimmune gastritis, psoriasis, Bechet's disease, idiopathic thrombocytopenic purpura, Wegener's granulomatosis, autoimmune thyroiditis, autoimmune oophoritis, bullous pemphigoid, pemphigus, polyendocrinopathies, Still's disease, Lambert-Eaton myasthenia syndrome, myasthenia gravis, Goodposture's syndrome, autoimmune orchitis, autoimmune uveitis, systemic lupus erythematosus, Sjogren's syndrome and ankylosing spondylitis.

Sub B3
7. A method of treating or preventing the interleukin-12-induced inflammatory response of an inflammatory bowel disease in a human subject, comprising administering to a subject an amount of a ligand of complement receptor 3 or complement receptor 4 effective in downregulating production of interleukin-12, thereby treating or preventing the interleukin-12-induced inflammatory response of an inflammatory bowel disease.

8. The method of claim 7, wherein the inflammatory bowel disease is selected from the group consisting of Crohn's disease, ulcerative colitis and celiac disease/tropical sprue.

9. A method of treating or preventing the interleukin-12-induced inflammatory response of septic shock in a human subject, comprising administering to a subject an amount of a ligand of complement receptor 3 or complement receptor 4 effective in downregulating production of interleukin-12, thereby treating or preventing the interleukin-12-induced inflammatory response of septic shock.

Sub B4
10. The method of claim 1, 2, 3, 4, 5, 6, 7, 8 or 9, wherein the ligand of complement receptor 3 is selected from the group consisting of antibodies to complement receptor 3, iC3b, ICAM-1, fibrinogen, β -glucan, C3b, ICAM-2, ICAM-3,

a complement receptor 3-binding microorganism and a complement receptor 3-binding product of a complement receptor 3-binding microorganism.

11. The method of claim 1, 2, 3, 4, 5, 6, 7, 8 or 9, wherein the ligand of complement receptor 4 is selected from the group consisting of antibodies to complement receptor 4, iC3b, I-Cam-1, LPS, fibrinogen, β -glucan, a complement receptor 4-binding microorganism and a complement receptor 4-binding product of a complement receptor 4-binding microorganism.

12. A method of screening a substance for the ability to downregulate interleukin-12 production upon binding complement receptor 3, comprising:

a) contacting the substance with cells that express complement receptor 3 and produce interleukin-12;

b) detecting a reduction of interleukin-12 production in the cells of step (a), whereby an reduction of interleukin-12 production indicates a substance having the potential to downregulate interleukin-12 production; and

c). determining that the substance identified in step (b) downregulates interleukin-12 production by binding with complement receptor 3 by competitive binding assays, thereby identifying a substance having the ability to downregulate interleukin-12 production upon binding complement receptor 3.

13. A method of screening a substance for the ability to downregulate interleukin-12 production upon binding complement receptor 4, comprising:

a) contacting the substance with cells that express complement receptor 4 and produce interleukin-12;

b) detecting the reduction of interleukin-12 production in the cells of step (a), whereby a reduction of interleukin-12 production indicates a substance having the potential to downregulate interleukin-12 production; and

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c) determining that the substance identified in step (b) downregulates interleukin-12 production by binding with complement receptor 4 by competitive binding assays, thereby identifying a substance having the ability to downregulate interleukin-12 production upon binding complement receptor 4.

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